DOCUMENT RESUME

ED 122 170 CG 010 500

AUTHOR Jacob, Theodore
TITLE The Assessment of Interpersonal Relationships in Family Groups.
PUB DATE [75]
NOTE 13p.; Not available in hard copy due to marginal legibility of the original document

EDRS PRICE MF-$0.83 Plus Postage. HC Not Available from EDRS.
DESCRIPTORS Evaluation Methods; *Family Relationship; *Family Structure; *Interaction Process Analysis; *Interpersonal Relationship; *Power Structure; Relationship; Research Projects; Speeches; Statistical Analysis

ABSTRACT

The study of interpersonal relationships in family groups (composed of three or more persons) gives rise to a number of theoretical and methodological problems not typically encountered in the study of dyads. In particular, the inclusion of a third (or more) member into the interactional domain presents complex issues which challenge the investigator's statistical-methodological expertise, theoretical-conceptual resources, and willingness and ability to incorporate perspectives from traditionally distant disciplines. This report focuses on two of the issues that are relevant to the study of family groups. The first of these is the relationship among measures, especially those concerned with determining the power structure within a family. The second issue addressed is that of second-order effects involving, as it were, relationship among relationships. (Author/SJL)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

ED122170

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

The Assessment of Interpersonal Relationships In Family Groups

Theodore Jacob[1]

University of Pittsburgh

The study of interpersonal relationships in family groups (composed of three or more individuals) gives rise to a number of important theoretical and methodological problems not typically encountered in the study of dyads. In particular, inclusion of a third (or fourth, fifth, etc) member into the interactional domain under investigation, presents the researcher with extremely complex, yet fascinating, issues not commonly addressed in the study of individuals or couples — issues which challenge the investigator's statistical-methodological expertise, his theoretical-conceptual resources, and his willingness and ability to incorporate perspectives and information from traditionally distant disciplines. Because of time considerations, the following presentation must be made in a somewhat cursory fashion, allowing for the brief discussion of only two issues relevant to the study of family groups.[2]

The relationship among measures. In any serious research effort, the investigator soon becomes aware of various measurement procedures that can serve to operationalize concepts and processes important to his domain of study. In exploring the psychometric properties of such measures as well as their conceptual meanings, questions regarding the relationship among measures soon arise. In the study of family interaction, the concept of power or dominance is a good example of an extremely important variable that has been assessed by a variety of seemingly diverse procedures, including talking time, successful interruptions, revealed and unrevealed difference techniques, coalition games, interaction-process analysis derived measures, and self-report decision and attribution of authority measures. Stimulated by the welter of conflicting results characterizing this literature together with an increasing proliferation of measurement procedures,

CG 010 500

BEST COPY AVAILABLE

Dr. Hadley and I recently attempted to systematically evaluate the relationship among various measures of family power (Hadley, 1974; Hadley & Jacob, 1973).

Although degree of association between measures is typically evaluated by some type of correlation coefficient, such an analysis appeared inappropriate in the study of three person families for several reasons. First, the measurement procedures involved did not provide independent scores for all family members and computing correlation coefficients based upon an N which equaled the number of families X three (members) did not appear justifiable statistically. Second, computing separate correlation coefficients for each member (fathers, mothers, and sons) also seemed hazardous due to the possibility of restriction of range which would limit the correlations that could be obtained. Finally and most importantly, we were interested in determining whether or not the various measurement procedures reflected the same power structure within the same family. Correlation coefficients, however, would reflect variations in the magnitude of individually obtained scores and not the consistency of a family's structure across measures. For these reasons, a more appropriate analysis was developed and is based on the variations in family power structure across measures.

As suggested, degree of association among measures of family power can be assessed most appropriately by comparing the power hierarchies obtained on each measure for each family. For example, father> mother> son on Measure A and father> mother> son on Measure B would indicate the same power hierarchy exactly, whereas father> mother> son on Measure A and son> mother> father on Measure B would indicate exact opposite power hierarchies. Regarding the specific power structures that would obtain (assuming no ties) with any one measurement procedure, six possible triadic structures can be generated : father> mother> son, father> son> mother, mother> father> son, mother> son> father, son> father> mother, son> mother> father. With two measures of power, however, and six possible combinations for each measure, a 6 x 6 matrix of outcomes can be generated. For each of these 36 outcomes one can compare the similarity of power structure in

terms of "dyadic" matches; that is, any two triadic structures would contain 0, 1, 2, or 3 dyads reflecting the same or different relationships. For example, if a family revealed a power structure of father > mother > son on Measure A and father > son > mother on Measure B, there are two dyadic matches; that is, father > son and father > mother in both measures butmother > son on one measure and son > mother on the other. A matrix of all possible combinations of power structures and the number of dyadic matches for each combination is provided in Table 1.

Using dyadic matches as the unit for assessing the relationship between power hierarchies generated by two measurement procedures, one can then determine the (mean) number of matches to be expected between two measures on the basis of random sampling and the variance of this distribution. Once these values were defined it would be possible to evaluate the relationship between two power measures by comparing a population value (mean number of matches expected) with a sample value (mean number of matches obtained) within a t-test paradigm. For example, inspection of Table 1 indicates that 0, 1, 2, and 3 dyadic matches were associated with 6, 12, 12, and 6 triadic combinations, respectively, yielding a theoretical mean of 1.5 matches and a variance of .92. With 20 families, the standard error of the mean would be

$$\sqrt{\frac{SE_M^2}{N}} = \sqrt{\frac{.92}{20}} = .20$$

so that an obtained mean number of dyadic matches greater than 1.92 or less than 1.08 would suggest a significant association between two power measures.

The foregoing analysis, however, assumes that the six hierarchies generated by each of two measures were of equal likelihood of occurrence; that is, that population "base rates" were equal for all power hierarchies. If the various structures were not equally probable in occurrence, however, using parameter values which assumed equal population base rates would be inaccurate and would lead to serious interpretive errors. That is, if equal population base rates did not obtain,

using values of 1.5 and .92 as population estimates in the t-test would artifactually lead to observing statistically significant results. Specifically, the greater the inequality among marginal frequencies, the greater is the likelihood of erroneously observing statistically significant relationships. In order to consider the limits imposed by unequal marginal frequencies in generating an expected mean value and variance, the following procedures were followed for each comparison of two power measures:

1. For each of the 36 triadic combinations (see Table 1) an expected frequency of occurrence was calculated by multiplying the appropriate row by column and dividing that product by the total number in the sample (N=20). For example, if six families obtained a structure of father > mother > son on Measure 1 and eight families obtained the same structure on Measure 2, the number of father > mother > son-father > mother > son combinations to be expected by chance would be 2.4; that is 6 X 8 ÷ 20. (Without taking the marginal totals into account, one would assign every cell a "weight" of 1.0).

2. As previously noted, 6, 12, 12, and 6 triadic combinations were associated with 0, 1, 2 and 3 dyadic matches, respectively. Therefore, to obtain the expected frequencies of 0, 1, 2, and 3 dyadic matches, the (expected) cell freqeencies (previously calculated) associated with 0, 1, 2, and 3 dyadic matches, respectively, were summed. (To be noted, the sum of the 36 expected cell frequencies is always equal to N.).

3. The result of the previous calculations is a frequency distribution of the expected number of 0, 1, 2 and 3 dyadic matches consistent with the empirically obtained marginal frequencies. Using this distribution (rather than the 6, 12, 12, 6 distribution obtained by assuming equal likelihood of occurrence of all 36 triadic combinations), the mean number of expected matches and a variance estimate can be calculated and association between two power measures can be assessed by a t statistic. For example, the frequency of dyadic matches to be expected on the basis of marginal base rates in the comparison of total talking time and coalition

game was 3.25 (0 match), 7.50 (1 match), 6.05 (2 matches), and 3.0 (3 matches)—a distribution yielding a mean of 1.43 and a variance of .865. With 20 families the standard error of the mean was

$$\sqrt{\frac{SE_M^2}{N}} = \sqrt{\frac{.865}{20}} = .207$$

In this case, the mean number of matches obtained was 1.40 indicating a non-significant association between these two measures of power. To be noted, each comparison of two measures would yield a different (mean) number of expected matches and variance, as such, mean and variance values were calculated for each separate comparison.

Second-order effects. In the study of family interaction, one is confronted with a set of multiple and overlapping interactions which eventually must be understood as a highly differentiated and complexly integrated system of interpersonal relationships. The issue I wish to highlight at this time is that inclusion of a third (or fourth, fifth, etc) member into the interactional domain under study, necessarily challenges the investigator to begin dealing with such complexities involving as it were, relationship among relationships. With the simplest three-person family, for example, three dyads (father-mother, father-child, and mother-child) and one triad (father-mother-child) can be identified, and I would suggest that assessment of anything less than all four subsystems would yield an understanding of family relationships which is incomplete at best and inaccurate at worst. Beyond the importance of assessing and describing the nature of the one parental and the two parent-child relationships independent of one another, the more important information to be obtained from a paradigm involving the separate assessment of father-mother, father-child, mother-child, and father-mother-child interaction involves the comparisons between each dyad and the triad. In particular, information yielded from such dyadic-triadic comparisons is extremely important and depending upon one's perspective, can be described and understood in several ways. Bronfen-

brenner (1973) for example, has referred to such comparisons as "second-order effects" by which he means the impact of a third party on the pattern of interaction between two individuals. From a more general framework, assessing the relationship between two family members with and without a third (or fourth) member present can be viewed as an evaluation of context effects, or as Peterson (1973) suggests, a description of the "setting conditions" within which interactions occur which not only include the time of day and physical setting in which events occur, but..." most importantly, any other people besides the primary participants who may have influenced the interactions in some way." In brief, the assessment of all relevant family subsystems independent of and in interaction with one another seems necessary for a thorough understanding of family systems; in so doing, extremely important information will be obtained regarding the manner by which certain family interactions become modified or stablized as different members enter and leave the interactional field.

Given the seeming importance of such information in understanding normal as well as disturbed family interactions, it is unfortunate that family researchers, almost without exception, have limited their observations to only parents, only mother and child, or only parents and children. Stimulated by this glaring absence of data together with a concern for further understanding the relationship between family processes and psychopathology, several and my students and I are currently involved in two family interaction studies which allow for the systematic assessment and comparison of various family subsystems. In one project, family triads differing as to diagnostic status of child (conduct disorder, personality problem, and normal controls) and child age (preadolescent versus adolescent age child) are involved, and for each family father-mother, father-child, mother-child, and father-mother-child interactions are systematically assessed. Among the various issues to be addressed by means of this paradigm, three are of special importance. First, we are interested in determining how different age children influence the parental interaction, and conversely, how father-child and mother-child

interactions (again, involving children of different ages) are influenced by the addition of the second parent. For example, in a study I recently conducted, family triads differing as to child age were assessed as the three members simultaneously attempted to resolve differences of opinion that had previously been reported by each member individually (Jacob, 1974). Of particular importance to the present discussion, adolescent age children were significantly more influential than their preadolescent counterparts, and at least within middle-class families, this gain in child influence occurred primarily at the expense of mother's diminishing ability to alter outcomes. A more complete understanding of such patterns, however, requires a systematic assessment of second-order effects which allow for comparison of the child's influence vis-a-vis each parent with and without the other parent present. For example, it is possible that the older versus younger child's influence vis-a-vis mother only becomes manifest in the triadic interactions, where the child receives implicit or explicit support from father, which in turn, is related to the increasingly stronger coalition or identification between father-son versus mother-son as the child approaches adulthood. Second, and independent of child age effects, we are interested in determining how the various dyadic-triadic relationships differ as a function of the child's diagnostic status. For example, are normal parents less conflictual in their child's presence whereas disturbed parents are equally conflictual with and without their child present as Becker and Iwakami (1969) suggest? If so, is this pattern specific to families with conduct disorder children only, or are there parallels (or even reversals) when comparisons involves families with normal versus personality problem children? Finally and obviously we are interested in the nature of the (statistical) interaction between child age and child diagnostic status insofar as influencing the previously described second-order effects.

In the second project, family tetrads (father, mother, preadolescent child, adolescent child) are involved; for half of these families, the older child is an adjudicated delinquent whereas in normal control families neither child has been involved in any delinquent activities. For all families, assessed interactions involve parents alone, parents and older child, parents and younger child, parents and both children, and children alone. Similar to the first project, second-order effects related to child age and diagnostic status will also be explored. Since both levels of each variable are represented within the same family, however, this study will hopefully provide information of particular importance to understanding the clinical-theoretical contention that "disturbance is a family affair." Specifically, we are interested in determining whether or not normal and disturbed families can be differentiated when observations exclude the "identified patient" and focus only on the parents or the parents and the "well-sibling" from the same family. Viewed in terms of differential second-order effects, we are interested in whether the father-mother interaction is altered by the presence of a child, and if so, if this change is related to the child's diagnostic status. Although only a first step, we believe that data obtained from this study will have important implications for understanding systemic properties of family systems in general and for evaluating etiological versus reactive models of psychopathology in particular.

Footnotes

1. This paper was presented at the American Psychological Association, Chicago, September, 1975. Copies may be obtained from Dr. Theodore Jacob, University of Pittsburgh, Pittsburgh, PA 15260.

2. Additional issues involved in the assessment and description of family interaction include task effects (Jacob & Davis 1973; Zuckerman, 1975), sequential patterning and its measurement (Haley, 1964; Mishler & Waxler, 1975; Raush 1965, 1972), unit of analysis and within vs between family scores (Jacob, 1975, Mishler & Waxler, 1968) and methodological controls affecting the adequacy and interpretability of family interaction investigations (Jacob, 1975).

TABLE 1

Comparison of Power Hierarchies Obtained from Two Measures in Terms of Dyadic Matches

Measure 2 \ Measure 1	F > M > S	F > S > M	M > F > S	M > S > F	S > F > M	S > M > F
F > M > S	3	2	2	1	1	0
F > S > M	2	3	1	0	2	1
M > F > S	2	1	3	2	0	1
M > S > F	1	0	2	3	1	2
S > F > M	1	2	0	1	3	2
S > M > F	0	1	1	2	2	3

References

Becker, J. & Krakami, E. Conflict and dominance within families of disturbed children. Journal of Abnormal Psychology, 1969, 74, 330-335.

Bronfenbrenner, U. An emerging theoretical perspective for research in human development. Paper presented at the biennial meeting of the Society for Research in Child Development, Philadelphia, April, 1973.

Hadley, T. The measurement of family power : A methodological study. Unpublished doctoral dissertation, University of Pittsburgh, 1974.

Hadley, T. & Jacob, T. Relationship among measures of family power. Journal of Personality and Social Psychology, 1973, 27, 6-12.

Haley, J. Research on family patterns : an instrument measurement. Family Process 1964, 3, 41-65.

Jacob, T. Patterns of family conflict and dominance as a function of child age and social class. Developmental Psychology 1974, 10, 1-12.

Jacob, T. Family interaction in disturbed and normal families : a methodological and substantive review. Psychological Bulletin 1975, 82, 33-65.

Jacob, T. & Davis, J. Family interaction as a function of experimental task. Family Process 1973, 12, 415-427.

Mishler, E. & Waxler, N. Interaction in families New York : Wiley, 1968.

Mishler, E. & Waxler, N. The sequential patterning of interaction in normal and schizophrenic families. Family Process 1975, 14, 17-50.

Peterson, D. A plan for studying interpersonal behavior. Paper presented at workshop on Life Span Socialization and the Family, Penn State University, May, 1973.

Raush, H. Interaction sequences. Journal of Personality and Social Psychology, 1965, 2, 487-499.

Raush, H. Process and change : A Markov model for interaction. Family Process 1972, 11, 275-298.

Zuckerman, E. Patterns of family power, conflict and activity as in function of experimental tasks. Unpublished doctoral dissertation, University of Pittsburgh, 1975.